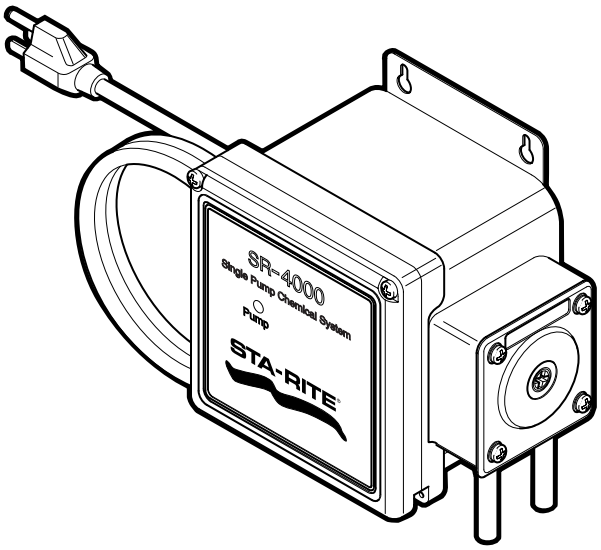
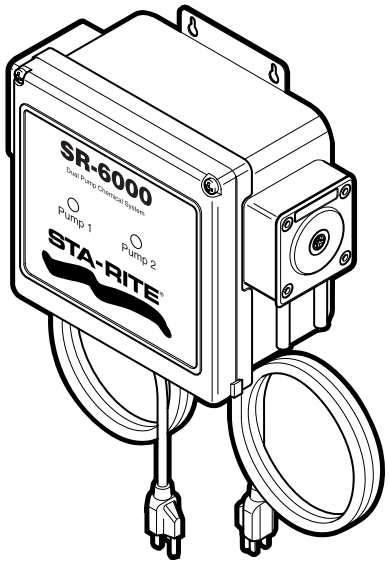
STA-RITE®

Chemical Feed System

OWNER'S MANUAL



SR-4000
Single Pump Chemical System
With Interval Timer



SR-6000
Dual Pump Chemical System
With Interval Timer

INSTALLATION, OPERATION & PARTS

MEMBER
NATIONAL SPA & POOL INSTITUTE

This manual should be furnished to the end user of this system; its use will reduce service calls and chance of injury and will lengthen system life.

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READ AND FOLLOW SAFETY INSTRUCTIONS!

⚠ This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ DANGER warns about hazards that **will** cause death, serious personal injury, or major property damage if ignored.

⚠WARNING warns about hazards that **can** cause death, serious personal injury, or major property damage if ignored.

⚠ CAUTION warns about hazards that **will** or **can** cause minor personal injury or property damage if ignored.

NOTICE indicates special instructions not related to hazards.

Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

⚠WARNING **Hazardous pressure** **Incorrectly installed or tested equipment may fail, causing severe injury or property damage.** Read and follow instructions in owner's manual when installing and operating equipment.

Use equipment only in a pool installation.

⚠WARNING **Explosion hazard. This feeder is not explosion proof. Do not install or use in an explosive atmosphere.**

Dispensers carrying the NSF seal are listed for swimming pools, spas and hot tubs with the following chemicals:
12.5% SODIUM HYPOCHLORITE 10% HYDROCHLORIC ACID
80% NATURAL ENZYME

When proper materials are selected, they are capable of handling but not limited to the following solutions:
12.5% ALUMINUM SULPHATE 5% SODIUM CARBONATE
2% CALCIUM HYPOCHLORITE 10% SODIUM HYDROXIDE

DESCRIPTION

The SR-4000 and the SR-6000 are liquid dispensing systems for pool and spa applications consisting of a peristaltic pump, an interval timer and a duration timer. With the flexibility of interval choices as well as duration adjustment, they are capable of handling a range of applications. The SR-4000 is a single pump system. The SR-6000 is a dual pump system, with a separate control board for each pump. Either system can be plugged into a standard 115VAC electrical outlet with the cord provided or hardwired to 115VAC, 208VAC, or 230 VAC using the wiring diagrams provided (See Figure 3, Page 3).

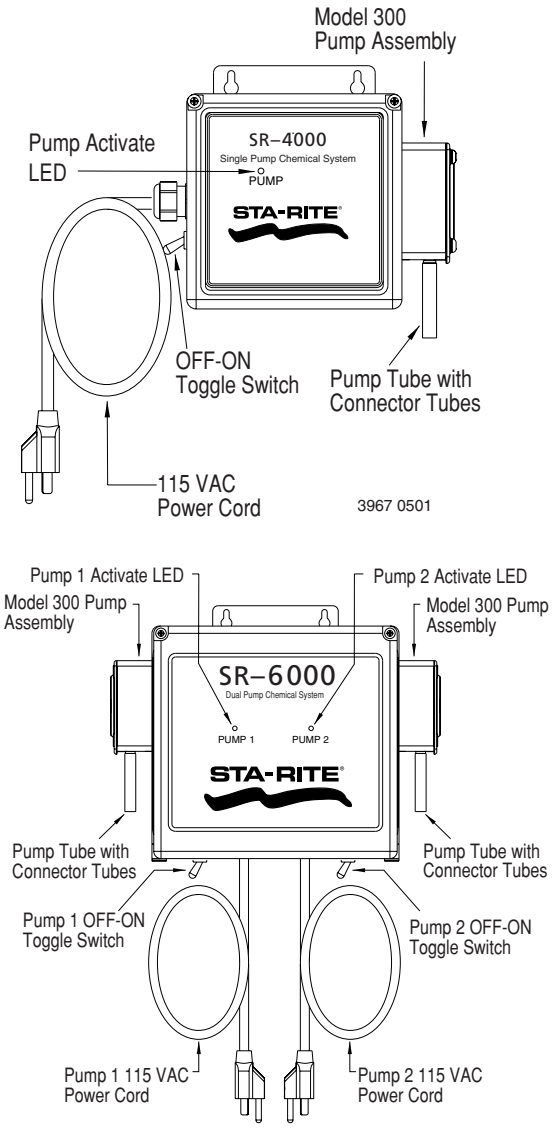


Figure 1: SR-4000 and SR-6000 chemical Feed Systems.

APPLICATION

Adding pool chemicals automatically on a regular basis will minimize the high and low swings associated with intermittent manual chemical maintenance. By adding chemicals automatically on a regular cycle, a more consistent level can be achieved than is possible with weekly or semi-weekly manual additions. The pump can lift 15 feet from the supply tank, and push up to 20 feet vertically and 65-70 feet horizontally to the final injection point. Injecting into pressurized lines up to 30 PSI is possible without special considerations. The SR-4000 and SR-6000 can also be set on a continuous setting and cycled by an automatic controller.

⚠WARNING Risk of chemical burns and explosion.

⚠ Always consult the chemical manufacturer for proper storage, use, handling and compatability for use with a peristaltic pump.

⚠ Follow all warnings and instructions provided by the chemical manufacturer.

⚠ Never dispense different chemicals through the same supply tubing.

⚠ Always flush the pump and the supply tubing thoroughly with water prior to changing to another chemical.

⚠ Always inject chemicals into the return line downstream from all pool equipment.

⚠ Always wear protective clothing and face shield appropriate to the chemical(s) you are handling.

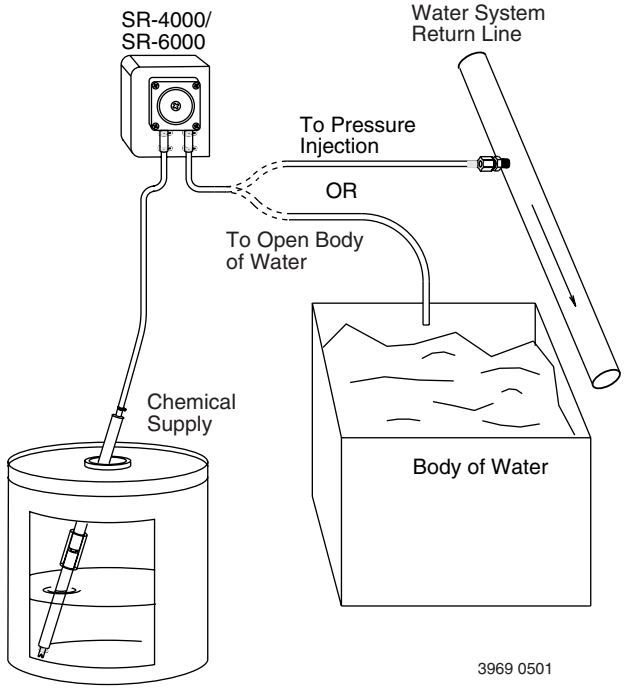


Figure 2: Plumbing Setup.

INSTALLATION

Mounting

Mount the SR-4000/SR-6000 Dispenser on a wall near the chemical supply. The dispenser should be less than 15 feet from the chemical container and less than 70 feet from the injection point. Although further distances are possible, performance may be reduced. Testing is recommended for greater distances. Use appropriate hardware for the chosen mounting surface. Mounting location should be protected from exposure to direct spray and direct sunlight whenever possible.

Plumbing

Connect the chemical tubing and drum kit following the instructions included with the plumbing kit. Additional tubing and hardware may be required depending on distances and configuration. Secure the injection point as required for either a pressure line or an open body of water.

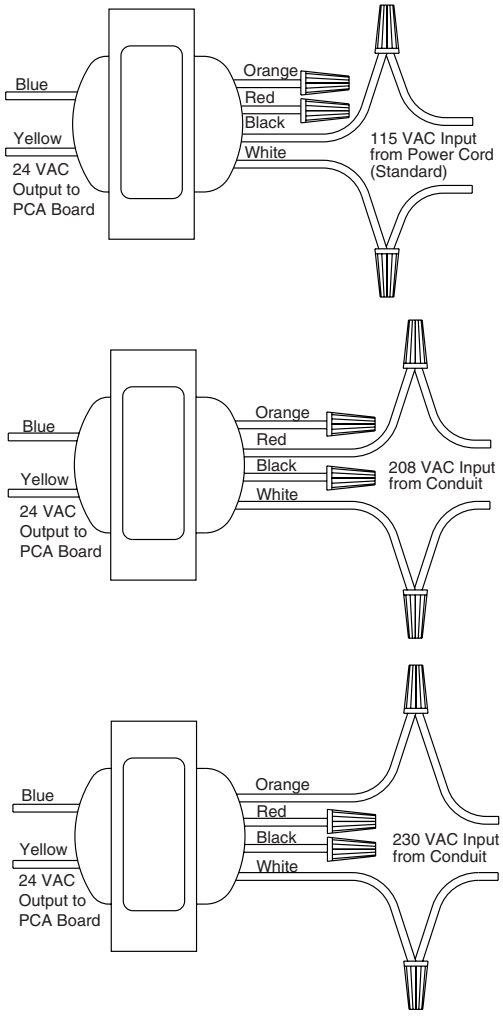


Figure 3: 24VAC Transformer Connections.

Wiring

⚠WARNING Chemical burn hazard.

⚠ This unit pumps one dose of chemicals when power is first turned on to the pump. Connect all hoses and start the main circulation pump before connecting power to the chemical feed pump.

⚠ If this unit continues to operate when the circulator pump is off, it will build up chemicals at the chemical feed injection point in the circulation system. If the main circulation system is controlled by a timer, wire the chemical feed pump through the same timer so that it cannot operate when the circulator pump is off.

Make sure to have the SR-4000/SR-6000 power switch(s) in the "OFF" position. The SR-4000/SR-6000 are factory wired for 115VAC and are equipped with a standard 115VAC power cord. If a 115VAC outlet is available, plug the cord into the outlet. In the event 208VAC or 230VAC is required, the system can be wired accordingly. See Figure 3.

⚠WARNING Hazardous voltage (line voltage) in the control box when feeder is plugged in. Always unplug the power cord(s) to the chemical feeder before opening the enclosure for any reason except to prime the pump. When priming the pump, do not put your finger or any tools inside the control box. Do not attempt to work on, service, or replace internal box components while the system is plugged in.

Refer to local electrical codes when supply is other then a standard 115VAC outlet. A qualified electrician may be required for this conversion.

PCA CONTROL LAYOUT

The controls described in this manual refer to the components on the Printed Circuit Assembly (PCA). The PCA is mounted on the inside of the door of the SR-4000/ SR-6000. To determine the location of these controls on the PCA, please refer to Figure 4.

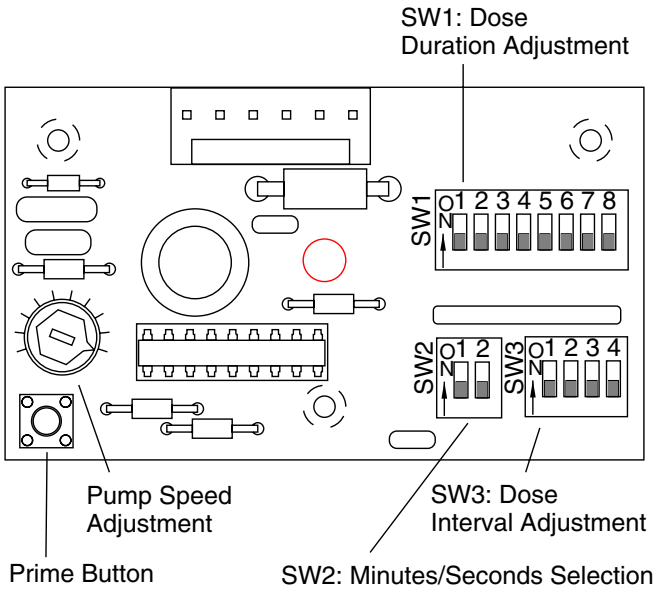


Figure 4: Control Board (PCA) Layout.

Set-up

When a known daily or weekly volume of chemical is required, calculations can determine the proper dose amount and the interval between subsequent doses to maintain a desired chemical level. The SR-4000/SR-6000 are factory set at 60 RPM and are equipped with 3cc per revolution pump tubes. This set-up will deliver approximately 6 fluid ounces per minute per pump. Calibration may be required to get a more exact rate. In most cases there are several combinations of dosage times and intervals that achieve the same total daily chemical dose.

EXAMPLE: 24 doses/day at 1 oz./dose =24 oz./day just as 12 doses/day at 2oz/dose = 24 oz./day

Ounces Per Day

No. of	3cc/Rev Pump Tube @ 60 RPM															
	Duration of Dose in Seconds															
Doses/Day	1	2	3	4	5	10	15	20	25	30	35	40	45	50	55	60
96	9.7	19.5	29.2	38.9	48.6	97.3	145.9	194.6	243.2	291.9	340.5	389.2	437.8	486.5	535.1	583.8
48	4.9	9.7	14.6	19.5	24.3	48.6	73.0	97.3	121.6	145.9	170.3	194.6	218.9	243.2	267.6	291.9
24	2.4	4.9	7.3	9.7	12.2	24.3	36.5	48.6	60.8	73.0	85.1	97.3	109.5	121.6	133.8	145.9
12	1.2	2.4	3.6	4.9	6.1	12.2	18.2	24.3	30.4	36.5	42.6	48.6	54.7	60.8	66.9	73.0
8	0.8	1.6	2.4	3.2	4.1	8.1	12.2	16.2	20.3	24.3	28.4	32.4	36.5	40.5	44.6	48.6
6	0.6	1.2	1.8	2.4	3.0	6.1	9.1	12.2	15.2	18.2	21.3	24.3	27.4	30.4	33.4	36.5
4	0.4	0.8	1.2	1.6	2.0	4.1	6.1	8.1	10.1	12.2	14.2	16.2	18.2	20.3	22.3	24.3
3	0.3	0.6	0.9	1.2	1.5	3.0	4.6	6.1	7.6	9.1	10.6	12.2	13.7	15.2	16.7	18.2
2	0.2	0.4	0.6	0.8	1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.1	11.1	12.2
1	0.1	0.2	0.3	0.4	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.1	4.6	5.1	5.6	6.1

Determine the injections per day required and the duration time of each injection by using the chart on Page 4.

EXAMPLE 1: 6 doses per day at 25 seconds each will deliver 15 ounces per day.

EXAMPLE 2: 8 doses per day at 60 seconds each will deliver 48 ounces per day.

Once the required number of injections and the duration of each dose are determined, set the switches SW1, SW2, and SW3 for the correct number of injections and the duration of each dose.

- **Durations** of 1-255 seconds with 1-second increments or 1-255 minutes with 1-minute increments are possible.
- **Intervals** of 15 minutes to 4 weeks are possible (see Figure 8, Page 6, for a detailed list of possible intervals).

CONTROL DESCRIPTION

Prime Button

Pressing this button activates the pump at full speed. Use this button to prime and fill the supply and injection lines

Minutes or Seconds Selection (SW2)

The dose duration can be set for minutes or seconds. The first toggle of the 2 toggle dipswitch SW2 is "DOWN" for seconds and "UP" for minutes. The second toggle for this dipswitch is not used. See Figure 5.

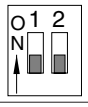
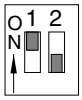
Time Unit	Maximum	Setting
Seconds	255	
Minutes	255	

Figure 5: Minute/Second selection (SW2).

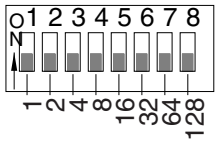
Dose Duration (SW1)

The dose duration is the amount of time required for each dose. The Dose Duration adjustment will set a duration of from one to 255 units (of either minutes or seconds), but it doesn't determine which units to use. To determine whether duration will be measured in minutes or in seconds, use SW2 "Minutes/Seconds Selection". Sliding individual toggles of SW1 to the "UP" position programs the dose duration. Multiple toggles can be switched to add to the total time. See Figures 6 and 7.

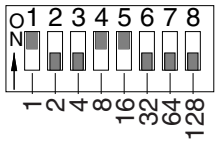
If the main circulator pump operates on a timer, the chemical feeder should only operate when the circulator is running. In this case, wire the chemical feed pump through the same timer and adjust the dose duration and interval to allow for intermittent operation.

Switch No.	Toggle Amount	Move to 'UP' Position to Add:
1	1	1 Sec. or Min.
2	2	2 Sec. or Min.
3	4	4 Sec. or Min.
4	8	8 Sec. or Min.
5	16	16 Sec. or Min.
6	32	32 Sec. or Min.
7	64	64 Sec. or Min.
8	128	128 Sec. or Min.

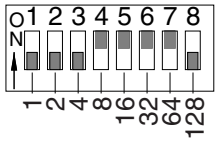
Figure 6: Switch functions of "Dose Duration" dipswitch (SW1).



EXAMPLE 1: SW1 Settings. No switches up (0 Time).



EXAMPLE 2: SW1 Settings for 25 Seconds or Minutes. Switches 1,4, and 5 up (1+8+16=25).



EXAMPLE 3: SW1 Settings for 120 Seconds or Minutes. Switches 4,5,6 and 7 up (8+16+32+64=120).

Figure 7: Examples of dip switch settings to set dose durations.

Interval Cycle (SW3)

The interval cycle sets the time between each dose. Determine the required interval and use the "Dose Interval Adjustment" chart (Figure 8) to configure the SW3 dipswitch.

Pump Flow

Each peristaltic pump is equipped with a 3cc per revolution pump tube. The maximum flow with this tube at full speed of 60RPM is 180 cc/minute (6 fluid ounces). This rate is calculated based on pumping water with no back-pressure. Actual flow will vary depending on viscosity of fluid, distance pumped and actual speed of the pump. Calibration may be required to determine actual flow with each installation.

Calibration

The SR-4000/SR-6000 have a nominal flow rate of 6 fluid ounces per minute per pump (@60 RPM). When pumping into an open or non-pressurized location, the actual pump flow can be measured at the output point by pumping actual product into a container of a known volume. In pressure applications, the actual pump flow can be determined by measuring the amount of actual product that is drawn out of a container. A good amount to measure is 6 ounces. Measure (in seconds) the time it takes to pump 6 ounces and divide that by 60 seconds to determine the time variance from the chart. Use the formula below.

If the main circulator pump operates on a timer, the chemical feeder should only operate when the circulator pump is running. In this case, adjust interval and dose settings to allow for intermittent operation.

T = Time in seconds to pump 6 ounces
C = Calibrated amount in seconds
D = Duration in seconds from the chart

$$\frac{T}{60} \times D = C$$

Example: If it actually takes 65 seconds to pump 6 fluid ounces, and you require a nominal 25 second dose time, the calculation would be:

$$\frac{65}{60} \times 25 = 1.083 \times 25 = 27.07 \text{ or } \boxed{27}$$

Thus the calibrated new duration would be set to 27 seconds. This will now deliver the required daily dosage.

Dose	Interval	SW3 Setting
None	Off	
1 per 28 Days	4 Weeks	
2 per 28 Days	2 Weeks	
4 per 28 Days	1 Week	
14 per 28 Days	2 Days	
1 per Day	1 Day/24 Hrs.	
2 per Day	12 Hrs.	
3 per Day	8 Hrs.	
4 per Day	6 Hrs.	
6 per Day	4 Hrs.	
8 per Day	3 Hrs.	
12 per Day	2 Hrs.	
24 per Day	1 Hr.	
48 per Day	30 Min.	
96 per Day	15 Mins.	
Full On	Continuous	

Figure 8: SW3 (Dose Interval Adjustment) settings.

Pump Speed Adjustment

The pump speed potentiometer allows for speed adjustment. The pump is factory set with the knob turned as far as it will go clockwise (↷) for maximum speed (60 RPM). Adjust the interval and duration settings, rather than the pump speed setting, to meet daily requirements. If you need a slower pump speed after setting the interval and duration switches, then turn the Pump Speed Adjustment knob counter-clockwise as necessary to slow the pump.

NOTE: The rate of 6 fluid ounces per minute is based on 60 RPM. Any other speed setting will alter flow calculations.

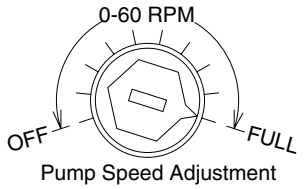


Figure 9: Turn knob to adjust pump speed.

MAINTENANCE

1. If flow decreases noticeably, check pump tubes for deterioration. Check the pump calibration whenever you replace a pump tube.
2. Replace all pump tubes every six months. Check the pump calibration whenever you replace a pump tube. See "Calibration", Page 6, for calibration instructions.
3. The pump is shipped from the factory with the pump tubes pre-lubricated with silicone base grease. Replacement pump tubes come with a packet of lubricant and instructions for replacement and lubrication.
   - No additional lubrication should be necessary if tubes are replaced at 6-month intervals.
   - If lubrication should become necessary, use a good grade of silicone-based grease. **DO NOT** lubricate the pump tube with any petroleum-based lubricants - they will attack the pump tubes.
   - Use only original equipment replacement parts for these pumps. Use of pump tubes other than factory authorized replacements may cause leakage, chemical burns, and property damage.

Replacing Pump Tube

Periodic replacement of the pump tube should be made to avoid unscheduled service calls. To replace or inspect a pump tube, follow the procedure below.

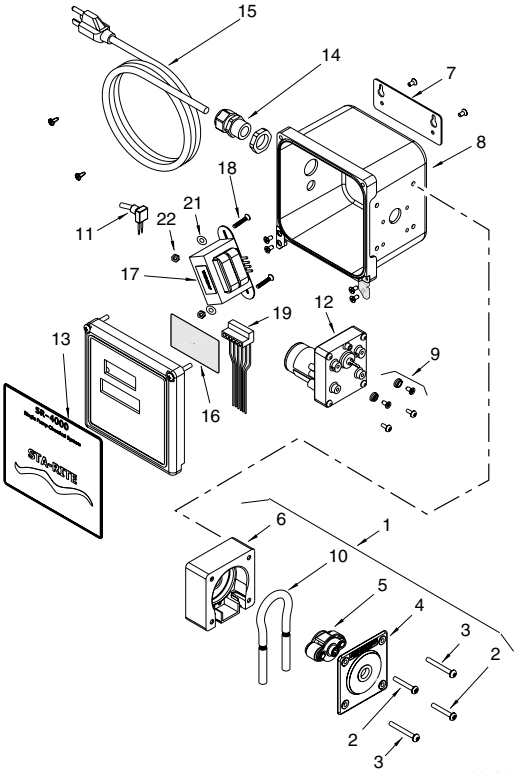
1. Turn off input power to the dispenser.
2. Remove chemical supply and injection tubing from the pump.
3. Remove the lower left and upper right 1-5/8" screws from pump cover to remove the pump from the dispenser.
4. Remove the remaining two screws from the pump cover and snap cover off pump housing by grasping the extended lip of cover on lower edge.
5. Remove pump rotor assembly. **DO NOT** grasp the springs.
6. Remove pump tube from pump housing by working the tube stems out of the pump housing.
7. Install the new tube, making sure to lock tube stems into pump housing tube stem collars. **DO NOT** twist the tube when installing.
8. Lubricate the housing hole and the cover hole for the rotor assembly shaft, and wherever rollers touch the pump tube, using silicone-based grease.
9. Install rotor assembly by pressing roller against tubing at the top of the pump housing.
10. Seat rotor shaft in pump housing hole.
11. Snap pump cover onto rotor and housing and install upper left and lower right 1-1/4" cover screws. (**DO NOT** overtighten.)
12. Using a large blade screwdriver, turn rotor assembly to see that pump is assembled correctly and operating properly.
13. Place pump on dispenser motor shaft so that motor shaft mates with pump rotor. Rotate pump (**NOT** motor shaft) so that upper right and lower left pump cover holes align with holes in dispenser.
14. Install pump mounting screws to attach pump to dispenser (DO NOT overtighten pump mounting screws.)
15. Reinstall chemical supply and injection tubing to the pump.

This pump is designed only for use as a pool or spa chemical feeder. Maximum recommended concentrations of chemicals are as follows:

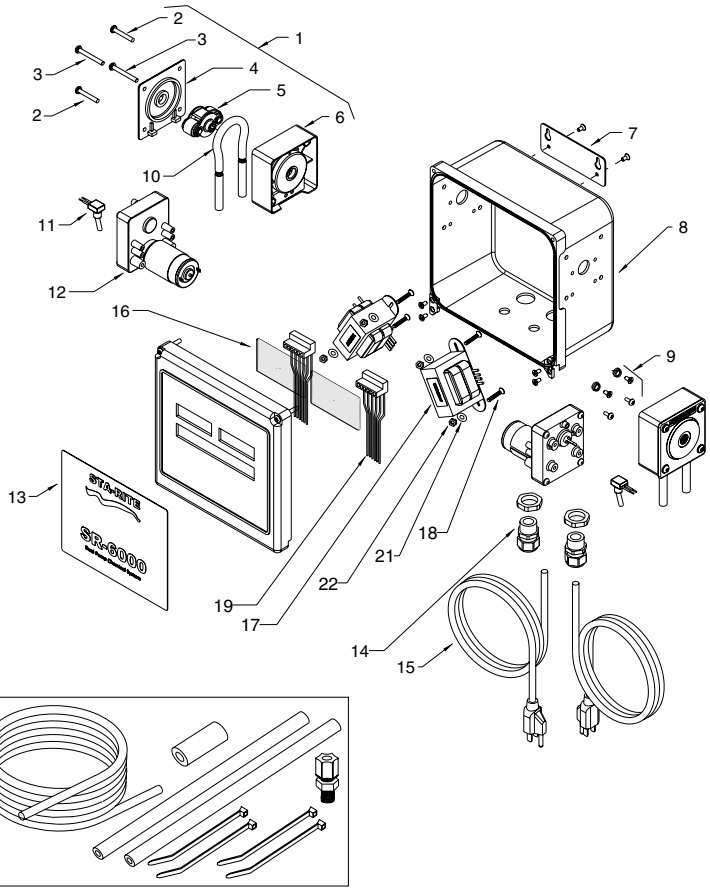
Chemical	Maximum Concentration
Aluminum Sulphate	12%
Calcium Hypochlorite	2%
Sodium Carbonate	5%
Sodium Hydroxide	10%
Sodium Hypochlorite	12.5%
Enzymes	80%

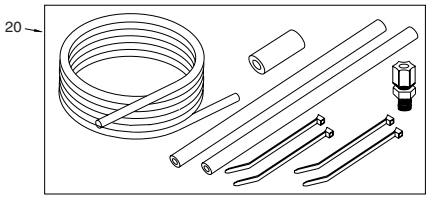
EXPLODED VIEWS

SR-4000



SR-6000





Repair Parts List

Key No.	Description	Part Number	Quantity	
			SR4000	SR6000
1	Pump Assembly, Model 300	41400-0001	1	2
2	10-32 x 1-1/4 SS Pan Head Screw	41400-0002	2	4
3	10-32 x 1-5/8 SS Pan Head Screw	41400-0003	2	4
4	Pump Cover, Smoke, TW	41400-0004	1	2
5	Rotor Assembly	41400-0005	1	2
6	Pump Housing, Grey	41400-0006	1	2
7	Mounting Bracket Kit	41400-0007	1	1
8	Enclosure (SR4000)	41401-0008	1	–
8	Enclosure (SR6000)	41402-0008	–	1
9	Motor Mount Hardware Kit	41400-0009	1	2
10	Ptube, PT, 3.0cc, w/coupler	41400-0010	1	2
10	Ptube, PT, 1.5cc*	41400-0026	1	2
10	Ptube, PT, 2.0cc*	41400-0027	1	2
11	Toggle Switch with Seal	41400-0011	1	2
12	60 RPM Motor, 24VDC	41400-0013	1	2
13	Overlay (SR4000)	41401-0014	1	–
13	Overlay (SR6000)	41402-0014	–	1
14	Waterproof Cable Clamp	41400-0015	1	2
15	18/3 SJT Power Cord, Black	41400-0016	1	2
16	Printed Circuit Assembly	41400-0017	1	2
17	120/208/240-24VAC, 40 VA Trans	41400-0018	1	2
18	#8-32 x 1" Flat-Head Screw	41400-0019	2	4
19	Wiring Harness	41400-0020	1	2
20	PS Accessory Kit	41400-0021	1	2
21	#8 Flat Washer	41400-0022	2	4
22	#8-32 Hex Nut	41400-0023	3	6
•	Stacking Shaft Kit for 2 Pump System*	41400-0024		
•	Stacking Shaft Kit for 3 Pump System*	41400-0025		

• Not illustrated.

* Accessory item. Purchase separately. A “Stacking Shaft Kit” allows you to run more than one pump per motor.

STA-RITE FULL WARRANTY

The SR-4000 and SR-6000 Chemical Dispensing Systems manufactured by Sta-Rite are warranted to be free of defects in material and workmanship for two (2) years from date of installation. The pump tubes are an exception and do not have any warranty coverage. Please see Page 7 for pump tube maintenance.

The foregoing warranties relate to the original consumer purchaser ("Purchaser") only. Sta-Rite shall have the option to repair or replace the defective product, at its sole discretion. Purchasers will not be responsible for paying any labor or return shipping charges required to fix the product covered by this warranty. Requests for warranty service must be made through Customer Service at 800-752-0183. This warranty shall not apply to any product that has been subject to negligence, misapplication, improper installation or maintenance, or other circumstances which are not in Sta-Rite's direct control.

This warranty sets forth Sta-Rite's sole obligation and Purchaser's exclusive remedy for defective products.

STA-RITE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Supersedes all previous publications.

Sta-Rite Industries, Inc., 293 Wright St., Delavan, WI 53115

▲ **Retain Warranty Certificate (upper portion) in a safe and convenient location for your records.**

DETACH HERE: Fill out bottom portion completely and mail within 10 days of purchase/installation to:
▼ **Sta-Rite, Attn: Warranty Dept., 293 Wright St., Delavan, WI 53115**

STA-RITE®

Warranty Registration Card

Name

Address

City State Zip

Purchase Date

Product Purchased

☐ New installation ☐ Replacement

Type of Pool ☐ Inground ☐ Vinyl ☐ Fiberglass ☐ Gunite

Size of Pool

Years pool has been in service ☐ less than 1 ☐ 1-3 ☐ 3-5 ☐ 5-10

Purchased from:
Company name

Address

City State Zip

Please send me more information on these other products from Sta-Rite.

☐ Pumps ☐ Filters ☐ Automatic Pool Cleaners
☐ Maintenance Equipment ☐ Test Strips
☐ Heaters